

\* SWBAT solve word problems using  $F=ma$

Sep 6-2:31 PM

# Welcome!!!

SECA Physics  
Monday 2 November 2015

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\* Pick up:

- slip of paper (for later)
- notebook
- whiteboard, marker, eraser

Centering...

Opening Question:


MASS

In  $F = m * a$   
what do the letters stand for?

FORCE

ACCELERATION

Newton's 2nd Law

 <https://www.youtube.com/watch?v=gkcidRnzGfc>

Sep 7-7:04 AM

Newton's 2nd Law:

MORE FORCE MORE ACCELERATION  $m \downarrow$   
 MORE MASS  $\rightarrow$  LESS ACCELERATION  $m \downarrow$

$$\rightarrow F = m a$$

FORCE = MASS · ACCELERATION



$$1 \text{ N} = 1 \frac{\text{kg} \cdot \text{m}}{\text{s}^2}$$

Practice:

A 2 kg ball is accelerated at 3 m/s/s: What is the force accelerating it?

$$F = m \cdot a = 2 \text{ kg} \cdot 3 \text{ m/s/s} = 6 \frac{\text{kg} \cdot \text{m}}{\text{s} \cdot \text{s}} = 6 \text{ N}$$

If I push with 10 N of force on a 5 kg block, what will its acceleration be?

$$a = \frac{F}{m} = \frac{10}{5} = 2 \text{ m/s/s}$$

A 1 N force accelerates a toy car 2 m/s/s. What is the mass of the car?

Oct 26-7:31 AM

MAKE UP YOUR OWN...

$$F = m a$$



Oct 24-7:50 AM

## Practice Problems

- \* Work alone or with a partner
- \* Make sure you understand the first 4 problems (for sure)
- \* If you've got those, pick out a couple challenge problems that look do-able. Check with others to see what they got.

Oct 27-7:25 AM

## Daily 3 Questions

- \* Every day except test/project days
- \* 3 Questions on the topics of the day
- \* Main source of daily points
- \* I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your **NAME!!!**

| Name | Period |
|------|--------|
| 1.   |        |
| 2.   |        |
| 3.   |        |

Sep 9-7:32 AM

1. For the same object, more force means \_\_\_\_\_ acceleration

- a. less
- b. the same
- c. more

2. How much force is needed to accelerate a 400 kg racecar at 20 m/s/s?

$$F = m \cdot a = 400 \text{ kg} \cdot 20 \text{ m/s}^2 = 8000 \text{ N}$$

3. If a 200 N force accelerates a skateboard and rider at 5 m/s/s, how much mass do they have?

$$m = \frac{F}{a} = \frac{200 \text{ N}}{5 \text{ m/s}^2} = 40 \text{ kg}$$

Oct 8-6:48 AM